

Amendment under 37 C.F.R. §1.114

Application No. 10/823,729

Attorney Docket No. 042341

REMARKS

Claims 1-4, 12, 28-29 and 34 are pending. Claims 5-11, 14-27 and 30-33 have been cancelled herein without prejudice or disclaimer. Claims 1-2 are amended herein. Support for the amendment is detailed below. New claim 34 is added herein. Support for the new claim is found at page 36 of the specification.

Applicants' Response to the Claim Rejections under 35 U.S.C. 102

Claims 1-4, 12, 13, 28 and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Cheng et al. (U. S. Patent No. 6,638,866). In response thereto, applicants have amended parent claims 1 and 2 to more distinctly claim the subject matter regarded as the invention. Specifically, applicants have included the feature of the present invention that the polishing slurry forming the first polishing material used in the main-polish and the polishing slurry contained in the second material used in the finish-polish are the same kind of polishing slurry. Cheng does not teach this feature of the present invention.

Cheng discloses a chemical-mechanical polishing process comprising: a first polishing step of polishing an oxide layer 24 using a first slurry to thereby planarize the oxide layer 24 (see FIG 11), and a second polishing step using a second slurry (see FIG 13). The first slurry has a selectivity of oxide with respect to nitride of greater than 3. On the other hand, the second slurry has a selectivity of oxide to nitride of greater than 10 and oxide to polysilicon of greater than 3. That is to say, in Cheng, the first slurry used in the first polishing step and the second slurry used

in the second polishing step are required to be different from each other. In Cheng, the first slurry used in the first step and the second slurry used in the second step are clearly distinct from each other (see column 3, lines 36-55).

The present invention, pursuant to amended claims 1 and 2, is clearly different from Cheng. As noted above, the first and second slurries of amended claims 1 and 2 are the same. Second, in the present invention, the polishing slurry containing abrasive grains and the additive of the surfactant is used in the main-polish, and the polishing slurry and water are used in the finish-polish. That is to say, in the present invention, water is added to the polishing slurry in the finish-polish (see pages 36-37 of the specification).

The present invention solves a particular problem which occurs in a case that the surface of the film-to-be-polished is polished by using the polishing slurry containing the abrasive grains and the additive of the surfactant. Namely in the case that the surface of the film-to-be-polished is polished by using the polishing slurry containing the abrasive grains and the additive of the surfactant (main-polish), the polishing rate becomes extremely low when the surface of the film-to-be-polished has been planarized, and the film-to-be-polished remains on the stopper film (see FIG. 21C of the present application). The film-to-be-polished on the stopper film must be removed by finish-polish. If the finish-polish is performed while only water is being supplied onto the polishing pad, the depth of dishings formed in the surfaces of the buried oxide films largely vary, and variation of film thickness distributions of the buried oxide films becomes large. The present invention solves the particular problem which occurs in the case that the

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surface of the film-to-be-polished is polished by using the polishing slurry containing the abrasive grains and the additive of the surfactant. In the present invention, since the finish-polish is performed while the polishing slurry and water (or mixture of the polishing slurry and water) are being supplied onto the polishing pad, variation of depth of dishings becomes small, and variation of film thickness distributions of the buried oxide films becomes small. Cheng et al. neither discloses nor suggests this feature of the present invention.

Wherefore, applicants respectfully submit that the present invention, pursuant to amended claims 1, 2 and their respective dependent claims are not anticipated by Cheng, as the reference does not teach each and every limitation of the claimed invention.

In view of the aforementioned amendments and accompanying remarks, Applicants submit that that the claims, as herein amended, are in condition for allowance. Applicants request such action at an early date.


If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

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If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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